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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,891	04/05/2004	Kazuhisa Tanabe	163852020800	4024

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EXAMINER	
BAXTER, ZOE E	
ART UNIT	**PAPER NUMBER**
3735	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/17/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/816,891	TANABE, KAZUHISA	
	Examiner	Art Unit	
	Zoe E. Baxter	3735	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 August 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 11* is/are rejected.

7)☒ Claim(s) *2-10* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is responsive to the amendment filed on August 30, 2006. The examiner acknowledges the amendments to claims 1-4. Claims 1-11 are pending.

Priority

2. Requirement for a translation of the foreign priority is withdrawn. Applicant provided a certified copy of the foreign priority meeting the requirements of 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. The term "correlation coefficient" in claim 11 is a relative term, which renders the claim indefinite. The term "correlation coefficient" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. Since a correlation coefficient is not clearly defined by the inventors it is being interpreted as any value to be used to compare two elements. The applicant states that correlation coefficient is defined on page 12 lines 21-28. Page 12 makes no mention of a correlation coefficient. It was further searched and there is no definitive

meaning of the term correlation coefficient that would be commonly known to one of ordinary skill in the art.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawamura et al. (U.S. Patent No. 4561447).

7. Claim 1 states the following: ***A pulse wave measuring apparatus comprising:***

a. ***a pressure pulse wave sensor including a plurality of sensor elements, detecting an intra-arterial pressure waveform superficial of a body,*** Kawamura et al. discloses a sensor comprising a plurality of sensors of which each of the sensors detects a pulse wave of the carotid artery, column lines 57-68.

b. ***a select unit selecting a selected sensor element located right above an artery out of said plurality of sensor elements based on a sphygmographic waveform detected with said pressure pulse wave sensor,*** Kawamura et al. describes an apparatus that compares the amplitudes of a plurality of pulse waves and determines one of said pulse waves to be a maximum-amplitude pulse wave signal, column 4 lines 64-68.

c. ***a sphygmographic waveform value calculation unit calculating a characteristic value from the sphygmographic waveform detected with said selected sensor element,*** Kawamura et al. discloses a method of weighting the outputs of each sensor such that a positive weight is applied to the maximum amplitude and negative weights are applied to the other outputs, column 4 lines 21-25.

d. ***a distortion degree calculation unit calculating difference in distortion degree of sphygmographic waveforms detected with respective said sensor elements, based on a sphygmographic waveform detected with said selected sensor element and a sphygmographic waveform detected with at least one sensor element located at a predetermined distance from said selected sensor element,*** Kawanura et al. calculates a difference in distortion between sensors in the step of determining a maximum amplitude. Further more in determining the weight factor a difference in distortions is being evaluated in that the maximum is being weighted in the positive direction and the other sensors are being give a negative value then the sum of all the sensors is being evaluated, by taking a sum of negatives essentially there is a comparison of the difference, column 4 lines 18-35. The applicant can overcome this rejection by clarifying the method of determining the distortion degree for instance if it is stated that a distortion is calculated from the first sensor and a distortion is calculated from the second sensor and then a difference is taken between the two distortion calculations.

e. ***an amplitude value correction unit correcting said amplitude value using said calculated difference in distortion degree.*** Kawanura et al. uses an average of the weighted pulse wave signals to produce a final pulse wave signal which is inherently an amplitude correction, column 4 lines 36-45.

8. Claim 11 claims a pulse wave measuring apparatus according to claim 1, wherein said distortion degree calculation unit calculates a correlation coefficient between a sphygmographic waveform detected with said selected sensor element and a sphygmographic waveform detected with said at least one sensor element located at a predetermined distance from said selected sensor element, as said difference in distortion degree. As stated above claim 1 has been rejected under 35 U.S.C. 102(b) as being anticipated by Kawamura et al. Referring to claim 11 the distortion degree calculation uses a correlation coefficient, which can be interpreted as being disclosed by Kawamura et al. as the value that is determined by weighting the pulse wave signals, column 4 lines 21-25.

Allowable Subject Matter

9. Claims 2-10 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

10. Claim 2 defines over the art because none of the art shows using an Augmentation Index (AI) value to calculate a value using an amplitude of a predetermined AI value from the selected pulse wave sensor.

11. Claim 3 defines over the art because none of the art shows a pulse wave measuring apparatus according to claim 2, wherein said difference in distortion degree calculated at said distortion degree calculation unit is a sum of a difference between an AI value calculated from a sphygmographic waveform detected with said selected sensor element and an AI value calculated from a sphygmographic waveform detected with said at least one sensor element located at a predetermined distance from said selected sensor element at said sphygmographic waveform minutia value calculation unit.

12. Claim 4 defines over the art because none of the art shows a pulse wave measuring apparatus according to claim 2, wherein said difference in distortion degree calculated at said distortion degree calculation unit is a sum of squares of a difference between an AI value calculated from a sphygmographic waveform detected with said selected sensor element and an AI value calculated from a sphygmographic waveform detected with said at least one sensor element located at a predetermined distance from said selected sensor element at said sphygmographic waveform minutia value calculation unit.

13. Claim 5 defines over the art because none of the art shows a pulse wave measuring apparatus according to claim 1, wherein said distortion degree calculation unit normalizes at a same phase a sphygmographic waveform detected with said selected sensor element and a sphygmographic waveform detected with said at least one sensor element located at a predetermined distance from said selected sensor element, and then calculates a ratio of a pulse wave height value of a sphygmographic

waveform detected with said selected sensor element to a pulse wave height value of a sphygmographic waveform detected with said at least one sensor element located at a predetermined distance from said selected sensor element at a same phase other than said same phase, as said difference in distortion degree.

14. Claim 6 defines over the art because none of the art shows a pulse wave measuring apparatus according to claim 1, wherein said distortion degree calculation unit normalizes a sphygmographic waveform detected with said selected sensor element and a sphygmographic waveform detected with said at least one sensor element located at a predetermined distance from said selected sensor element at a peak time phase, and then calculates a ratio of an area of said normalized sphygmographic waveform detected with said selected sensor element to an area of said normalized sphygmographic waveform detected with said at least one sensor element located at a predetermined distance from said selected sensor element, as said difference in distortion degree.

15. Claim 7 defines over the art because none of the art shows a pulse wave measuring apparatus according to claim 1, wherein said distortion degree calculation unit normalizes a sphygmographic waveform detected with said selected sensor element and a sphygmographic waveform detected with said at least one sensor element located at a predetermined distance from said selected sensor element at a peak time phase, and then calculates a ratio of a time width of said normalized sphygmographic waveform detected with said selected sensor element crossing a threshold value of a predetermined ratio to a time width of said normalized

sphygmographic waveform detected with said at least one sensor element located at a predetermined distance from said selected sensor element crossing said threshold value, as said difference in distortion degree.

16. Claim 8 defines over the art because none of the art shows a pulse wave measuring apparatus according to claim 1, wherein said distortion degree calculation unit calculates a ratio of area ratios of a sphygmographic waveform detected with said selected sensor element, preceding and succeeding a time phase corresponding to a dicrotic notch in one beat to area ratios of a sphygmographic waveform detected with said at least one sensor element at a predetermined distance from said selected sensor element, preceding and succeeding said time phase, as said difference in distortion Degree.

17. Claim 9 defines over the art because none of the art shows a pulse wave measuring apparatus according to claim 1, wherein said distortion degree calculation unit normalizes a sphygmographic waveform detected with said selected sensor element and a sphygmographic waveform detected with said at least one sensor element located at a predetermined distance from said selected sensor element at an area of a same beat, and then calculates a ratio of a maximum pulse wave height value of said normalized sphygmographic waveform detected with said selected sensor element to a maximum pulse wave height value of said normalized sphygmographic waveform detected with said at least one sensor element located at a predetermined distance from said selected element, as said difference in distortion degree.

18. Claim 10 defines over the art because none of the art shows a pulse wave measuring apparatus according to claim 1, wherein said distortion degree calculation unit calculates a ratio of an amplitude of a sphygmographic waveform detected with said selected sensor element to an amplitude of a sphygmographic waveform detected with said at least one sensor element located at a predetermined distance from said selected element, as said difference in distortion degree.

Response to Arguments

19. Applicant's arguments, see page 6 of the Remarks filed August 30, 2006 with respect to the rejection of claims 1-4 under U.S.C. 112 second paragraph have been considered and are persuasive. The rejection of claims 1-4 under U.S.C. 112 have been withdrawn.

20. Applicant's arguments filed 8/30/06 regarding the rejection under 35 U.S.C. 112 regarding claim 11 have been fully considered but they are not persuasive. The applicant states that correlation coefficient is defined on page 12 lines 21-28. Page 12 makes no mention of a correlation coefficient. In the stated paragraph two separate coefficients are mentioned and not one is specified as a correlation coefficient. It remains unclear to the examiner the clear definition of the correlation coefficient.

21. Applicant's arguments filed 8/30/06 regarding the rejections under 35 U.S.C. 102 have been fully considered but they are not persuasive.

22. In response to applicant's argument that the applicant's invention and the Kawamura reference are similar in that measurements are obtained by a sensor array, they differ in their subsequent approach to correcting these measurements. The applicant argues that the distortion degree is defined by the specification. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). On page 12 lines 4 and 5 the applicant states that method of defining a distortion is not limited to that which is specified therefore it remains that the method of Kawanura et al. calculates a difference in distortion between sensors in the step of determining a maximum amplitude. Further more in determining the weight factor a difference in distortions is being evaluated in that the maximum is being weighted in the positive direction and the other sensors are being give a negative value then the sum of all the sensors is being evaluated, by taking a sum of negatives essentially there is a comparison of the difference, column 4 lines 18-35.

23. In response to applicant's argument that the applicant's correlation coefficient completely differs from the "weighted coefficient" in the Kawamura reference. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). The weight factor can be evaluated as a difference in distortions in that the maximum is being weighted in the positive direction and the other sensors are being give a negative value then the sum of all the sensors is being evaluated, by taking a sum of negatives essentially there is a comparison of the difference, column 4 lines

18-35. It is also noted that the examiner does not agree that correlation coefficient is clearly defined in the specification.

24. In view of the above, the applicant has failed to distinguish the invention from the prior art reference and therefore the rejections under 35 U.S.C. 102 regarding claims 1 and 11 in the Office Action dated 05/05/06 are upheld.

Conclusion

25. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

26. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zoe E. Baxter whose telephone number is 571-272-8964. The examiner can normally be reached on Monday-Friday 7:30am-4:00pm.

28. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Marmor II can be reached on 571-272-4730. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

29. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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ZEB